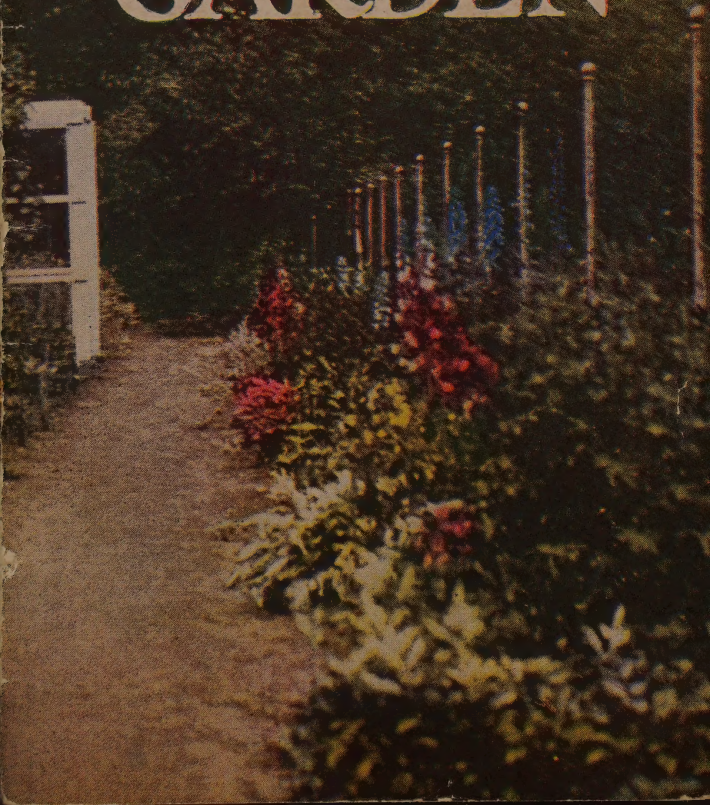
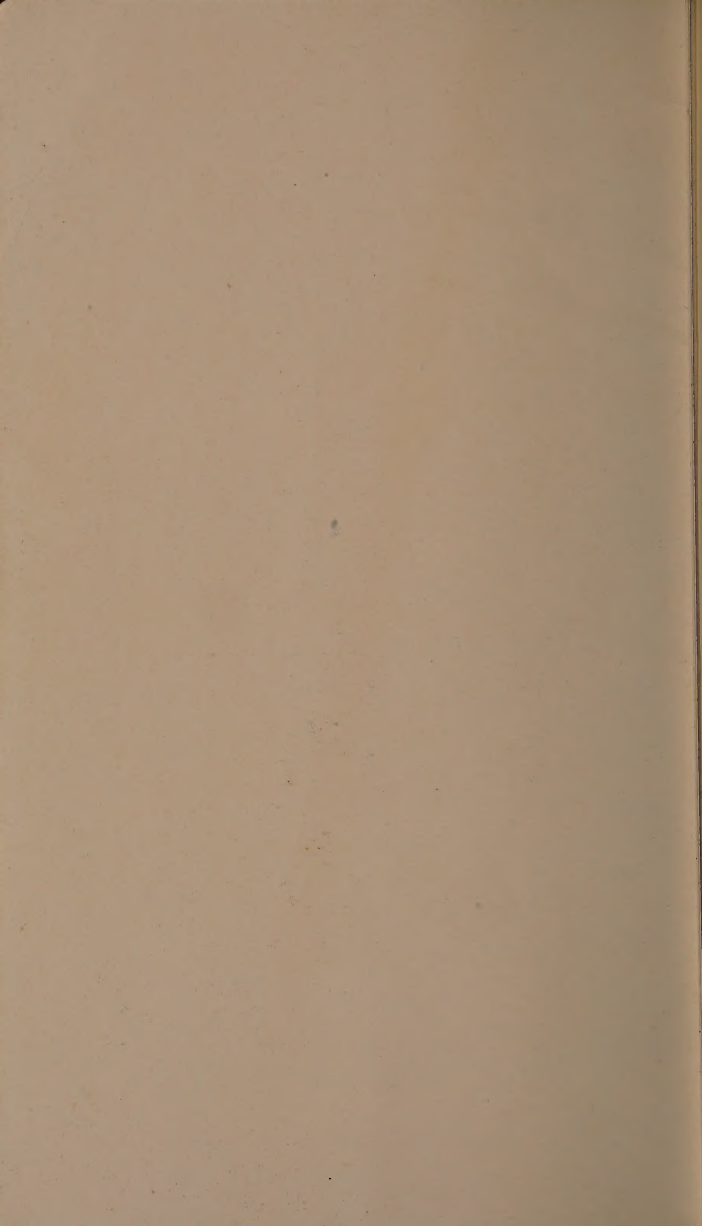


SPRAYING THE HOME GARDEN





SPRAYING

The

HOME GARDEN

A short treatise on
insects and diseases
that infest trees, vines,
shrubs, the flower
and vegetable garden,
with simple instructions
for their control.

ALSO ROSE CULTURE

SECOND EDITION
REVISED

By
B. G. PRATT

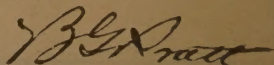
Foreword

IN dedicating this booklet to the amateur gardener, I do so with the desire to be of the greatest good to the greatest number. It is the result of my personal experience in home garden work during the past thirty-five years, and intimate contact with the best commercial growers throughout the United States for the past eighteen years, and the study of insects and diseases made necessary as a manufacturer of insecticides from the very beginning of what is known as commercial spraying.

I do not propose to write a manual of gardening, but how best to guard against diseases and stop the ravages of insects that so often frustrate and bring to naught all our loving care and attention.

I will not even attempt to exhaust the subject of insects or diseases, for the more we know, the less we know we know; but if you have some special problem, write me and I will try to help you solve it. If I cannot, I will frankly admit it.

Some plants, vegetables and flowers have fewer troubles than others; some are subject to a multitude of ills, but it is just these weak ones that we love the most and on which we lavish more time and care than on all the rest.

A handwritten signature in dark ink, appearing to read "V. B. Pratt". The script is fluid and cursive, with a long horizontal stroke at the end.

THE HOME GARDEN

PLEASE remember that the home garden presents all the problems of the apple grower, peach grower, pear grower, cherry grower, grape grower and berry-grower, the rose grower and the truck gardener,—each one of them a science in itself, on each of which men have spent a lifetime of work and study without reaching perfection.

Nearly every insect and disease known to horticulture finds a harbor in the home garden at some time or another, so that it would be, humanly speaking, impossible for you to absorb or for me to tell you, if I knew, all there is to the home garden, its care and protection, but I will try to give you the benefit of thirty-five years' experience reduced to the simplest terms for the man or woman who loves this delightful and healthy recreation. There may be something that would prove more effective for some one disease or insect, but the methods and materials as advised will take care of more insects and diseases than any other, and I believe I have tried them all with few, if any, exceptions.

I am not giving you theory, but my actual practice year after year, for the past ten or fifteen years. If you can get better advice and the time to follow it, you can forget and disregard all I have to say.

There is no royal road to success in gardening, and the greatest success is a failure

compared to real perfection. But don't let any of this dampen your ardor, for the greatest pleasure to the home gardener is the pursuit of perfection rather than the attainment of it.

SPRAYING

Spraying as practiced today is a new science; it is the science of *keeping well* rather than of *making well*. Of course, it also includes the curing of trees and plants, but no tree, however successful the cure, can be as vigorous as a tree that is kept healthy; and the leaf that once becomes diseased can never be made a good leaf again, although you may help to make a new leaf to take its place, but this takes strength from the tree or plant which should be used to make fruit or flower.

DISEASES AND INSECTS

In garden and orchard work there are a number of troubles that we have to fight. They are divided into two main classes—insects and diseases. These two are again divided into two general classes—

Sucking Insects and Chewing Insects

Fungous Diseases and Bacterial Diseases

SUCKING INSECTS are treated with a contact insecticide. You must hit the insect to kill it. San Jose Scale, Oyster Shell Scale and other scale are sucking insects that need a contact insecticide so strong that it can only be applied successfully when the leaves are off

the trees, and this is known as *dormant spraying*.

Scalecide is the complete dormant spray. Used one gallon to fifteen gallons of water, it will do more than can be done with any other dormant spray or combination of dormant sprays, and when you have used Scalecide on your trees, vines, shrubs and bushes, you can rest assured that you have done all that can be done by spraying, while they are dormant.

APHIS AND PLANT LICE, green, black, red and gray, also leaf-hoppers, are also sucking insects and must be hit with a contact spray to be killed. Nicotine Sulphate, diluted 1 part to 500 to 800 parts of water, used alone or combined with other sprays, such as Sulfocide and soap, is the best and most successful control.

CHEWING INSECTS are divided into two general classes,—those that chew or eat the foliage, and those that bore into the body of the tree or into the leaf itself. These foliage destroyers may be beetles with a hard shell or worms and caterpillars that are soft. Both are controlled by covering the foliage or their food with a poison so that when they eat it, they are killed.

There are two poisons in general use today, arsenate of lead and arsenate of lime (cal-arsenate). Arsenate of lead cannot be used in combination with all sprays. Cal-arsenate cannot be used on all plants. Arsenate of lead can be used with care on any plants need-

ing a poison spray, but should never be used in combination with Sulfocide, but may be applied after the Sulfocide spray is dry. Arsenate of lime, or cal-arsenate, can be combined with any fungicidal spray, either Sulfocide, lime-sulphur or bordeaux mixture, but should never be put on peaches, plums, cherries or other stone fruits.

Chewing insects that bore into trunks of the trees, into the bud of a flower, or into the leaf itself cannot be reached with a stomach poison.

THE PEACH AND APPLE BORER is a worm that bores into the tree near the ground. When you see gum exuding near the base of a peach, cherry or stone fruit, or see dust around the apple tree, look for borers. Locate the tunnel with the point of a knife; then run a soft wire up and down the tunnel and kill the borer.

There are a number of advertised remedies, but try them cautiously. A new remedy is being advocated by our experiment stations with an awful name—Paradichlorobenzene. It is intended for peach trees only and can be used with safety only on trees five years old or over. If interested, get special directions from your experiment station.

Scalecide at double strength (1 to 8) has been used successfully by the West Virginia Experiment Station for peach borers. Remove the dirt, wipe off the gum and spray or paint about one foot of the trunk in the

month of September, or when spraying spray thoroughly down to the ground and let some of the Scalecide run around the base of the trunk.

When shot-hole borers attack a tree, it is a sign of very low vitality, and in most cases it might as well be taken out.

FUNGIOUS DISEASES are innumerable, but principally attack the leaves and fruit. They are really of vegetable origin—one vegetable growing on another—and of course destroy the leaf or fruit tissues as they grow. They sometimes attack the bark or roots of the tree, forming a canker or sore. The more common forms are mildew, rusts, scab, leaf spot, etc. Except for cankers, the treatment of fungous diseases must be preventative. A leaf or fruit that is once diseased can never be made perfect again, but you can prevent the disease from attacking the leaf or fruit.

Cover the surface of the leaf or fruit with a fungicide, either in the form of a wet spray or a dust, during the season or time when the particular disease is prevalent, so that when the spores (seeds of the disease) lodge on the leaf or fruit, they are killed by the fungicide before they can take root. So a fungicidal spray must be just strong enough to kill one plant without injury to the other.

So far no fungicidal spray has been devised that will not cause some injury to foliage under some conditions beyond our control, even at recommended strengths. Sometimes

even plain water will scald. The weather either before or after spraying does have an influence not fully understood.

Sulfocide used at a dilution of 1 gallon to 200 gallons of water, or combined with a little soap, 3 lbs. to 200 gallons, takes care of as many fungous troubles without injury to the plant or fruit as any spray that I know of, but please remember that the "time when" and "manner how" are more important than the "where with." Thorough spraying at the right time is just as important as the material used.

BACTERIAL DISEASES, as a rule, cannot be controlled by spraying. They are bacilli or living organisms that work in the sap or plant tissues. The leaf or plant suddenly withers and dies, and when this appears in vines such as squash and cucumbers, pull out the whole vine and destroy it.

BACTERIAL BLIGHT of apples and pears, known as *twig blight*, is very common and very destructive to both home fruit trees, as well as commercial orchards. It first appears in the blackened twigs during the summer, which look as though they had been scorched by fire. This is the first stage and is brought into the orchard by bees or other insects that puncture the leaf inoculating it with the bacillus. The danger is not so much in the twig blight, but when the disease goes down into the larger branches, the crotch, trunk of the trees, or even into the roots, the tree is in great danger of dying.

When a twig is blighted or when the bark has been broken, either by pruning, carelessness, or from sun-scald, the disease may enter; blackened areas form on the bark, sometimes slightly depressed, and continue to spread until the whole limb or trunk is diseased and dies. These are known as hold-over cankers, blight cankers, or collar blight, according to where they are located. In the spring or summer a little exudation of sap may be seen on or around the edge of these cankers, which is the source of infection, and bees, ants and other insects are attracted to this exudation and afterwards carry it to the leaves or blossoms.

The dormant spraying with Scalecide will cause these cankers to heal up and stop the exudation, and to that extent stop fire blight.

DORMANT SPRAYING

Now that we have a better idea of insects and diseases that we have to contend with in our gardens, they will be easier to understand and control.

DORMANT SPRAYING, when the leaves are off, should be done with Scalecide diluted 1 part to 15 parts of water, any day when it is not colder than 40° Fahrenheit. Spray every tree, shrub, bush or vine that drops its foliage during the winter. It is a healthy cleaning up for spring opening and will take care of all the insects and diseases that can be controlled during the dormant season.

It is not necessary to spray with Scalecide but *once a year*, but it should be used *once every year* whether you have scale or not, as it not only cleans your trees, but is an invigorator and takes care of various fungous diseases and cankers that can be best controlled at that time.

SUMMER SPRAYING

SUMMER SPRAYING. Sulfocide diluted 1 part to 200 parts of water (2 ounces to 3 gallons) will prevent more of the fungous troubles in the flower or vegetable garden and home fruit trees than any other spray that I know of, and while it does not control all fungous diseases, it greatly simplifies all home gardening and will give delightfully surprising results seldom exceeded even where intimate knowledge of all the different fungicides and diseases is available.

For sucking insects, such as green, black and red lice (aphids) and leaf-hopper, add one teaspoonful of nicotine sulphate 40%, or Black Leaf 40, to each gallon of Sulfocide spray.

For chewing insects, such as caterpillars, potato beetle, squash bugs, flea beetles, etc., use cal-arsenate combined with Sulfocide, one heaping teaspoonful to each gallon of spray ($\frac{3}{4}$ of a lb. to 50 gallons) except on stone fruits, such as peaches, plums, cherries, etc. (see page 12), increasing this amount somewhat on potatoes (1 lb. to $1\frac{1}{2}$

lbs. to 50 gallons); or dust with 1 part of cal-arsenate or arsenate of lead to 5 parts of hydrated lime (slaked lime), using some of the various dust guns or a bag made of cheesecloth.

SPRAYING CALENDAR

For all Fruit Trees, Shrubs and Vines

FIRST OR DORMANT SPRAYING. In the early spring select a nice day when the temperature is not colder than 40° Fahrenheit. Get out your spray-pump. See that it is clean and well oiled. Put in the required amount of water and stir in 1 part of Scalecide to each 15 parts of water. (See page 26.) Spray every shrub, bush, vine and tree that drops the foliage in winter. Don't forget your grapevines, currants, gooseberries, rose bushes, lilacs, etc. Commence at the bottom and spray to the top-most twig until every spot has been thoroughly wet. Scalecide will not mar paint.

Brown's Auto-Spray No. 5 with or without the knapsack tank, but always with the extension rod bent at the end, is the best I have ever used in the home garden.

SECOND SPRAYING. If you have the time and care to do so, spray all your fruit trees just before the blossoms open when they are in bud, with Sulfocide, 1 to 200, and soap. This includes your grapevines, currants and gooseberries. They often bloom at different times, so that the time of spraying will also differ. The best commercial fruit growers never omit

this spray; it is important for scab control on apples and brown rot on peaches, cherries and plums.

For Apples, Pears, etc.

THIRD SPRAYING—APPLES AND PEARS. Spray after the blossoms drop with Sulfocide, 1 gallon to 200 gallons of water and cal-arsenate, 4 lbs. to this amount. This spraying should never be omitted. It is to protect against wormy fruit and insects eating the leaves. Use no soap with Sulfocide when you use cal-arsenate. Kayso, a casein lime spreader, can be used to advantage; $1\frac{1}{2}$ lbs. to 200 gals.

Ten days later spray with Sulfocide, cal-arsenate and Kayso.

Twenty-one days later spray with Sulfocide, cal-arsenate and Kayso.

For Peaches, Plums and Stone Fruits

THIRD SPRAYING—PEACHES, PLUMS, CHERRIES, APRICOTS. Just as the shucks or withered blossoms are falling from the newly formed fruit, spray with $\frac{3}{4}$ lb. arsenate of lead combined with 3 or 4 lbs. slaked lime, or $\frac{1}{2}$ lb. Kayso, to 50 gallons of water, or one teaspoonful of arsenate of lead to one gallon of water and 3 or 4 heaping tablespoonfuls slaked lime. This spraying is for curculio, the little insect that stings the peaches and plums, making wormy fruit and causing it to drop. It is one of

the hardest problems of the plum grower, and if you are situated near a woods or where clean cultivation is not practiced, complete control is almost impossible. Pick up and destroy all fallen fruit.

Where Brown Rot is bad, this third spraying when the shucks are falling may be made with Sulfocide and soap first, and as soon as the Sulfocide spray is dry, spray with arsenate of lead and lime as directed above. Or use self-boiled lime-sulphur and arsenate of lead combined.

See that all arsenate of lead is washed out of the spray-tank before using Sulfocide again.

Never use cal-arsenate on peaches, plums or stone fruits.

For later sprayings of peaches, plums, cherries, and apricots, use Sulfocide and soap alone every few weeks until picking time. Peaches sprayed with Sulfocide and soap two or three days before picking will keep without rotting five to ten days longer than those unsprayed. The spray material does not show on the fruit and is not poisonous.

For Berries and Grapes

SUMMER SPRAYING. CURRANTS, GOOSEBERRIES, BLACKBERRIES, RASPBERRIES AND STRAWBERRIES should be given an occasional spraying with Sulfocide and soap. If green or black lice (aphids) appear, add nicotine sulphate, or Black Leaf 40. If you find worms eating the leaves of currants and goose-

berries, dust them with a combination of 1 part of cal-arsenate to 5 parts slaked lime, using a little bag of two thicknesses of cheesecloth, or get a Feeney Dust Gun. It is very effective and cheap. Keep it loaded for chewing insects or worms on squash, cucumbers, cabbages, etc.

GRAPES. Spray with Sulfocide and soap just before the blossoms open. Again, when the grapes are well formed. It is not often necessary to spray again until the grapes begin to ripen unless rot or mildew sets in. You may burn a few leaves, but you will positively stop rot even after it has started. I have often had grapes that hung on late to dry up like raisins, on the vines or after bringing them into the house. Peaches so treated two or three days before picking will keep without rotting from five to ten days longer than unsprayed.

Rose-bugs or chafers sometimes attack grapevines and young apple trees doing considerable injury. They will not eat poison unless specially prepared. Use 2 lbs. arsenate of lead to 50 gallons of water to which 1 gallon of common syrup has been added, and spray grapevines and apple trees whenever they are attacked.

There is a contact spray made by dissolving 7 lbs. fish oil soap in 50 gallons of water, to which one-half pint (one cupful) crude carbolic acid is added just before spraying. This will kill the rose-bugs that you hit with it,

but you must hit them to kill them. For rose-bugs on roses, see page 25.

For Vegetables

BEANS. Spray with Sulfocide and soap just as they break through the ground and every ten days or two weeks until they begin to bear.

TOMATOES. Spray in the cold frame before setting out, and every ten days or two weeks with Sulfocide and soap.

CUCUMBERS, MELONS, SQUASH. Dust with cal-arsenate, 1 part, and slaked lime, 5 parts, to which a few drops of turpentine is added (1 teaspoonful of turpentine thoroughly stirred into 6 lbs. dust) just as they come through the ground, and at any time that the striped beetle appears. Spray once in a while with Sulfocide and soap to protect from disease.

Aphis or lice sometimes attack peas, tomatoes and potatoes. Spray with Sulfocide, soap and nicotine sulphate.

POTATOES. Spray as soon as they are a few inches high with Sulfocide, 1 gallon to 150 gallons of water and 6 lbs. cal-arsenate to this amount (3 oz. Sulfocide to 3 gals. of water and 6 teaspoonfuls of cal-arsenate). Spray every ten days or two weeks or as needed.

DIPPING POTATOES. There are diseases that are carried on the potatoes themselves, so seed potatoes should be dipped for two hours in a solution of 1 pound of formaldehyde to

30 gallons of water. This amount placed in a barrel will just cover a sack of potatoes. It can be used repeatedly, but add enough solution to cover the potatoes. Some growers use two knives in cutting potatoes, dropping one knife in a bowl of dilute formaldehyde after cutting each potato.

For lice or aphids on potatoes or tomatoes, add nicotine sulphate or Black Leaf 40 to the Sulfocide spray, or you may use with great success one quart of Sulfocide and one-half gallon of Scalecide to 50 gallons of water (2 oz. of Sulfocide and 4 oz. Scalecide to 3 gallons of water). Some plants will not stand this preparation, others will; so try it carefully on anything outside of potatoes, tomatoes and apples.

ASPARAGUS. For asparagus rust, spray with Sulfocide and soap. If the asparagus beetle appears, let some of the weak stalks grow and the beetles will congregate on these plants. Dust them well with a dust made from one part of cal-arsenate to four or five parts of slaked lime. In the fall, cut down the asparagus bushes and burn.

CUT WORMS. This troublesome pest is always worse in sod land or where green cover crops have been turned under. They cut down cabbage and tomato plants just after setting, usually close to the ground. They work at night, and if you will dig with your finger around the plant that has been cut off, you will unearth the culprit. He is usually an inch or two below the surface.

If you have only a few plants, the following method is very successful in guarding against cut worm. Cut or tear newspaper into squares about three inches each way. Wrap this loosely around the stalk of the plant as you set it out. Let the paper extend one-half inch to one inch below the surface of the ground.

A poisoned bait for cut worms is made by taking one ounce of paris green and one pound of bran or middlings, a little cheap sugar or molasses, and just enough water to make it stick together. Use a teaspoonful of this around the plant towards night. Keep fowls away.

Keeping the garden free from weeds and grass during the summer time and cleaning up and burning, or piling on a compost heap, all vines and stalks will do a great deal to keep your garden free of insects and diseases. Many diseases and insects pass the winter in the old stalks, so have your garden just as clean in the fall of the year as you want it in the spring of the year. Where possible, spade up or plow your garden in the fall.

For Shade and Ornamental Trees

SHADE TREES. For Cottony Maple Scale, Lecanium Scale, European Elm Scale, Oyster Shell Scale, etc., spray with Scalecide, 1 part to 15 parts of water, in the spring of the year before the leaves come out.

When foliage of shade trees turns brown around the edges and no apparent reason for

it, use from 5 to 10 lbs. nitrate of soda dissolved in 50 gallons of water, poured over the ground under the tree. Feed and water liberally.

For Elm Leaf Beetle, spray thoroughly the under side of the leaves with arsenate of lead, 1 to 1½ lbs. to 50 gallons of water, just after the foliage comes out, or spray the trunks of the trees with Scalecide, 1 part to 15 parts of water, as the larvae (young beetles) come down the tree.

HORSE CHESTNUTS. Spray once or twice in the early summer with Sulfocide, 1 gallon to 200 gallons, with 3 lbs. soap to 200 gallons.

CONIFERS. Spruces, pines, cedars, etc., should be sprayed with Scalecide, 1 part to 20 parts of water, in the spring for the control of spruce gall, pine scale, etc. Blue spruces will turn green for a while until the new growth starts.

EUONYMUS AND EVERGREENS. Spray with Scalecide, 1 to 25 parts of water, just before new growth starts.

ORANGE AND CITRUS TREES. Use 1 part of Scalecide to 50 parts of water.

PALMS. Wipe or sponge off the leaves with Scalecide, 1 part to 50 parts of water. Avoid excessive amount running down into the base of the leaves.

For the Flower Garden

PEONIES will be benefited by spraying with Sulfocide and soap just as they come through the ground and occasionally up until blooming time. The ants that infest the peonies do no harm; they are after the honey-dew on the blossom buds.

HOLLYHOCKS AND CARNATIONS should be sprayed with Sulfocide and soap once in a while to ward off some rusts.

RED SPIDERS are often quite injurious to *violets* and other plants. Spray thoroughly, especially the under-side of the leaves, with Sulfocide and soap.

ROSES. BLACK SPOT. See treatment on page 24. I have never had black spot except on potted plants brought in to fill out a bed, but after the dormant spraying with Scalecide and summer spraying with Sulfocide, soap and nicotine, it has always disappeared. Try it.



MY ROSE-BED

THE rose is undoubtedly the most universal favorite in the flower garden,—truly the queen of flowers, growing and blooming under the most adverse conditions, yet location, preparation and planting have so much to do with success that I am devoting as much time and space as I can to this one subject.

Select a sunny location for your rose-bed, even if it is necessary to cut the lawn (which I do not always approve) free from shade and roots of trees, and if possible, protected from the prevailing winds. The rose will thrive in almost any soil if properly prepared and enriched. The bed should not be over four to four and a half feet wide so that you can reach every plant without stepping on the bed. A bed four feet wide and twenty-five feet long will be sufficient for forty-eight hybrid tea or monthly roses planted sixteen inches apart.

PREPARING THE BED. If in sod, remove the sod; then one foot of the top soil and lay to one side. If the sub-soil is porous and well drained, spade up and mix with well rotted manure. It may be necessary to remove some of the sub-soil to allow for the addition of manure, which should be about one-third manure to two-thirds earth. If the sub-soil is heavy clay and not well drained, remove all of the dirt to a depth of twenty-four inches. Put in four to six inches of broken stone, brickbats or pots. On top of this put in the sod, bottom side up. Now replace the sub-

soil with one-third well rotted manure and two-thirds earth. Any broken bones or some bone-meal is desirable. Replace the top soil, to which you can add well rotted cow manure, if possible, plenty of bone-meal or some super-phosphates. It might be well to firm the ground as you put it in. Don't have the bed so high that all the water will drain away, or so low that it will settle on the bed.

Plant deep, two inches below where the rose bushes are budded. Dig the hole big enough so you can spread out the roots. Partly fill in the dirt and press the dirt well around the roots and fill hole with water. After the water is drained away, fill up the hole.

Don't put hardy perpetuals (June roses) in the same bed with hybrid teas (monthly roses). Always plant the best two-year-old plants you can buy. They are the cheapest in the long run.

PRUNING. This is too large a subject to undertake in so short a space, for different varieties need different pruning, but any nurseryman from whom you get your roses will give you special pruning directions. The following simple rules, however, will help. Thin out all weak wood and cut back the main stalks of hardy perpetuals to four or six buds. Don't cut your hybrid teas quite as close, but prune your hybrid teas all summer when you cut flowers. Cut the stem as long as possible, leaving only one or two buds on the

branch. These will grow out quickly and form new blossoms in the course of a few weeks.

Some of the hardy perpetuals and tall-growing hybrid teas, such as Gruss an Teplitz, should not be pruned back severely after planting. If cut back too much, they will form wood growth without blossoming. My Gruss an Teplitz planted in a hardy border will average six to eight feet tall and blooms from early spring until frost. When I pruned them severely, they made beautiful bushes but gave me no flowers.

Many of the rambler roses when they become well established, send out strong canes or shoots from the ground or near the ground. Cut out all the old wood as soon as it is through blossoming and leave only these new shoots or suckers and train them where you want them to go. They will often make a growth of twenty-five to thirty feet before frost and will give you a wealth of bloom on long, strong stems the following year. Some of the newer varieties may not stand this treatment, but it is undoubtedly the best for Crimson Rambler, Dorothy Perkins and roses of that general class.

Rambler roses are beautiful for trellises or trained on fences, but rarely should be used on or about houses. Some of the popular sorts are very subject to mildew and if on a building cannot be properly sprayed, as any spray that is effective will mar the paint of the

buildings. Trellises for rambler roses should not be painted with a lead paint. There are mineral paints like Carrara that make a beautiful white that does not darken from age or blacken from sulphur sprays.

When winter approaches, cover your rose-bed with three or four inches of coarse manure. When cold weather has settled, put a wire frame around the bed about twelve inches high. Wire fencing that can be forced into the ground without the assistance of stakes can be had at most hardware stores. Fill this in with leaves or refuse from the garden, asparagus stalks or even cornstalks to keep the leaves from blowing away.

In the spring when danger of freezing is past, remove the fence, leaves and stalks but leave the manure as a mulch. By this time it has rotted down and does not look badly. This will preserve the moisture and keep down weeds. Raking every once in a while is all that is necessary. It can be forked in late in the summer or left to be covered with another dressing of manure when winter comes.

CONTROL OF INSECTS AND DISEASES. Just as the leaf-buds begin to swell and show signs of starting in the spring, spray your rose bushes thoroughly with Scalecide, diluted 1 part to 15 parts of water (one ordinary water glass full to one gallon of water). Wet not only the bush but the ground under the bush. Scalecide is not only a scale-killer, but a fungicide and invigorator.

When the leaf and flower-buds come out, watch for the first appearance of aphid (green lice); also for leaf-hopper, the little white flies that suck the color out of the leaves and make them turn gray. Both work on the under side of the leaf. Spray now with Sulfocide, soap and nicotine sulphate.

Cut up a bar of ordinary laundry soap and boil in two quarts of water. Keep this in an old saucepan so you can heat it up when needed. Get a four-ounce graduate glass for measuring. Use two ounces of Sulfocide to three gallons of water and add three or four ounces of the dissolved soap and three teaspoonfuls of nicotine sulphate 40% or Black Leaf 40.

Spray every ten days or two weeks during the summer. A few minutes after spraying the Sulfocide is turned into pure sulphur, but an infinitesimally fine powder, and the drops that accumulate on the edges of the leaves look white. Take a whiskbroom and shake these drops off the leaves and no marking will be left on the foliage or buds. Of course, cut any flowers you want that day before spraying.

This spraying will kill the green aphid or lice; also the leaf-hoppers, and if used during the summer, will prevent the mildew even on the rambler roses. Dormant spraying with Scalecide and summer spraying with Sulfocide will control black spot on roses.

This spraying program takes care of most

everything but the rose-bug. This is harder to control, because it attacks the flowers themselves rather than the leaves. There are some remedies on the market but they require daily spraying and are quite costly. For the small garden I know of nothing better up to the present time than hand-picking. Put a little water in a can and pour a little coal oil or kerosene on top. Pick off the bugs and drop them in the can. A little while spent in the morning and afternoon during June, when they make their appearance, and followed faithfully will reduce the crop of bugs from year to year.

In conclusion, let me say that much has been omitted for lack of space. I only attempted to hit the "high spots." But with the general information as to insects and diseases, how they attack the different shrubs and plants, and then what spraying is for, and what class of sprays to use for different kinds of insects and diseases, even the amateur should be able to make such changes of program as from time to time will be needed.



PROPORTIONS

Be as accurate as you can

• Whenever we say, spray with SCALE-CIDE, without giving proportions, it *always* means 1 to 15.

1 cup or ordinary water glass (8 oz.) to one gallon water

3 cupfuls (1½ pints) to 3 gallons water

3 gallons to 50 gallons water.

Whenever we say SULFOCIDE and do not give proportions, it *always* means 1 to 200.

1 tablespoonful to 3 quarts of water

2 oz. to 3 gallons of water

1 cupful (8 oz.) to 12 gallons of water

1 quart to 50 gallons of water.

When we say to add SOAP to Sulfocide, it *always* means any ordinary laundry or fish oil soap dissolved in hot water.

1 oz. of soap to 3 gallons of spray

1 lb. to 50 gallons of spray.

If you get more or less soap in, it makes little difference. The soap makes the material spread instead of standing in dewdrops on a leaf.

Nicotine Sulphate or Black Leaf 40;

1 teaspoonful to 1 gallon of spray mixture

½ lb. to 50 gallons of spray mixture.

Cal-Arsenate;

1 heaping teaspoonful to 1 gallon spray

1 lb. to 50 gallons spray.

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